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GRC Environmental Programs Manual—Chapter 20

Handling, Reuse, Disposal of Soil

Approved by: Energy and Environmental Management Office Chief

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NASA - Glenn Research Center
Cleveland, OH 44135

Change Record

Revision	Effective Date	Expiration Date	C-25, Change Request #	Description
A	4/2015	4/2020		Changed office approval office name. Deleted word "non-waste" at few locations that did not belong. Updated all form links to reflect the NASA Electronic Form portal. Corrected several form names.

***Include all information for each revision. Do not remove old revision data. Add new rows to table when space runs out by pressing the tab key in the last row, far right column.*

Table of Contents

Chapter 20.—Handling, Reuse, and Disposal of Soil

NOTE: This chapter is maintained and approved by the Energy and Environmental Management Office (EEMO). The last revision date of this chapter was March 2015. The current version is maintained on the Glenn Research Center internet at http://www.grc.nasa.gov/WWW/FTD/EEMO/index.html. Approved by: Chief of Energy and Environmental Management Office.

1.0 PURPOSE

This chapter establishes policies and procedures for the handling, reuse, and disposal of soil at the NASA Glenn Research Center (GRC). The guidance provided in this chapter is applicable to GRC employees and contractors at all levels who in any way participate in the development and execution of GRC action involving the handling, excavation, storage, transportation, and/or disposal of soils. It sets forth guidelines to ensure that such operations do not result in solid or hazardous wastes being disposed of improperly and to ensure that areas of contamination are promptly addressed.

2.0 APPLICABILITY

This chapter is applicable to all personnel at GRC including, but not limited to, civil servants, contractor personnel, and students.

3.0 BACKGROUND

To address the increasing problems that the Nation faced from its growing volume of municipal and industrial waste, Congress enacted the Resource Conservation and Recovery Act (RCRA) in 1976 as an amendment to the 1965 Solid Waste Disposal Act. The RCRA set national goals for (1) protecting human health and the environment from the potential hazards of waste disposal, (2) conserving energy and natural resources, (3) reducing the amount of waste generated, and (4) ensuring that wastes are managed in an environmentally sound manner. Many states, including the State of Ohio, have passed their own laws and regulations and established programs for ensuring conformance with these laws and regulations. This chapter addresses the areas of the RCRA that apply to the management of soils.

4.0 POLICY

It is GRC policy to comply with state and Federal regulations. It is also GRC policy to (1) minimize the volume and toxicity of waste soils generated by GRC operations to the extent that is technically and legally possible and is economically practicable, and (2) evaluate the need for analyses on all soils prior to excavation and reuse excavated soil as fill material at GRC whenever possible.

5.0 RESPONSIBILITIES

5.1 Facilities Division—Project Manager

- Arranges (through the Facilities Division (FD) soil coordinator) for a site assessment to be performed for all projects that include the excavation of soil
- Arranges (through the FD soil coordinator) for preconstruction soil sampling to be performed, if required, by the Energy and Environmental Management Office (EEMO) Soil Program manager or an appropriate contractor for all construction or facility maintenance projects early in the planning phase
- For emergency or unplanned projects requiring excavation, contacts the EEMO Soil Program manager for guidance and recommendations concerning the appropriate environmental requirements
- Arranges for the disposal of excavated soil as recommended by EEMO Soil Program manager
- Ensures that contractors under their control fill out nonhazardous waste, hazardous waste, and solid waste manifests with coordination and guidance from the EEMO Waste Management group
- Ensures that—when soil discoloration, odors, debris, or other evidence of past disposal or release of chemicals or waste is encountered—work on the site stops and findings are reported to the EEMO Soil Program manager

5.2 Facilities Division—Soil Coordinator

- Coordinates all projects requiring preconstruction soil sampling with the EEMO Soil Program manager
- Maintains an inventory on all previous environmental assessments and pertinent environmental analysis
- Maintains a record of each site assessment that includes site historic information, sampling decisions, sampling plans, and analytical data

5.3 Energy and Environmental Management Office—Soil Program Manager

- Reviews and approves all sampling and analysis plans
- Reviews site assessment reports, recommends proper disposal or soil placement procedures, and completes Soil Determination Checklist (sample included in Appendix **C**)

5.4 Energy and Environmental Management Office—Manifests Signatory

On behalf of GRC, the manifests signatory provides signature authority on all waste and manifests for offsite shipments.

5.5 Energy and Environmental Management Office—Waste Management

- Reviews and approves potential disposal sites
- Ensures that all analytical needs for the disposal facility have been met
- Provides guidance to the project manager and designated contractors on a daily basis
- Shall maintain a record of waste characterization and classification
- Obtains authorization from the Director of the Ohio Environmental Protection Agency for any construction on previous or existing solid or hazardous waste sites
- Coordinates with outside agencies as appropriate
- Reviews hazardous, and nonhazardous, manifests, along with their associated documents, and advises EEMO manifests signatory on whether they meet requirements for signature
- Tracks returned manifests and maintains shipping documents, which include manifests, land-disposal notifications, and related documents
- Provides regulatory compliance checks on potential transporters and on treatment, storage, and disposal facilities
- Shall maintain a list of waste disposal parameters
- Obtains the appropriate EEMO signatures on profiles and manifests

5.6 Other GRC Organizations

All GRC organizations planning projects where soil is to be excavated must contact EEMO for guidance. If previous environmental data are not available, preconstruction soil sampling may be required to determine the potential hazard of the soil.

6.0 REQUIREMENTS

6.1 Training

Any person who is handling and/or managing hazardous soil shall be trained as stated in Chapter **5** of the Environmental Program Manual, Management of Hazardous Waste and RCRA Compliance.

6.2 Site Assessment

A site assessment is required for any project at GRC that includes the excavation of soil. The site assessment consists of the following:

- A review of available records to determine if the excavation site is located within the boundary of an area of concern (AOC) or other regulated unit
- A review of available records and laboratory analytical data to determine whether a release of chemicals or wastes has occurred and to identify potential contaminants of concern (COCs) based on past operations conducted at or near the excavation site
- A review of available laboratory analytical data generated from the sampling and analyses of soil from within the excavation site to characterize the soil for reuse and/or to support disposal characterization

The goal of a site assessment is to characterize the soil so that it will be properly managed. A site assessment is not required for a small-scale excavation (as determined by EEMO).

6.3 Preconstruction Soil Sampling

For an excavation site determined to be located within or near the boundary of an AOC or regulated unit, preconstruction sampling is required in the absence of available laboratory analytical data generated from the sampling and analyses of soil from within the excavation site. Soil samples will be analyzed for COCs associated with the AOC or regulated unit and any other COCs identified during the excavation site assessment.

For an excavation site determined not to be located within or near the boundary of an AOC or regulated unit, preconstruction sampling is required if the site assessment indicates that chemicals or wastes may have been released to the soil in the past.

The preconstruction sampling described in this section will be conducted prior to the start of construction and, in most cases, will require soil borings to obtain samples from appropriate depths. On a case-by-case basis, EEMO will develop site-specific sampling recommendations as part of the preconstruction planning process. EEMO or an outside party will develop a site-specific sampling plan that will incorporate these recommendations. EEMO will review and approve all sampling plans developed by outside parties.

6.4 Analytical Data Evaluation (*OAC 3745–52–11* and *OAC 3745–300–08*)

A determination that excavated soil is a waste will be based on the results of the site assessment and will include an evaluation of all applicable laboratory analytical data resulting from previous soil sampling events and/or preconstruction soil sampling and will be conducted in accordance with Ohio Administrative Code (OAC) rule 3745–52–11. In addition, soil to be excavated from within or near an AOC or regulated unit will be evaluated against the Ohio Voluntary Action Program (VAP) generic direct-contact soil standards as listed in OAC rule 3745–300–08. Soil with constituents detected at maximum concentrations less than Ohio VAP Generic Direct Contact Residential Standards or Commercial Standards will be considered for use onsite or offsite for use at commercial or industrial lands.

6.5 Waste Disposal Characterization

Waste disposal characterization will consist of the collection of soil samples analyzed for the full list of disposal facility parameters and may be conducted as part of preconstruction soil sampling. EEMO will maintain the list of disposal parameters.

6.6 Soil Excavation

If soil discoloration, odors, debris, or other evidence of past disposal or release of chemicals or wastes is encountered during excavation activities, work on the project must stop and project personnel must report the findings to the FD Project Manager. The FD Project Manager then will consult with the EEMO Soil Program manager to determine the appropriate course of action.

6.7 Excavated Soil Disposition

Soil classified as solid waste, Toxic Substances Control Act waste, or hazardous waste will be disposed of only at a landfill licensed to accept the soil. Soil that is not classified as a waste may be released to use as commercial or industrial land fill.

7.0 RECORDS

Soil Determination Checklist (Appendix **C**).—Maintained by EEMO Soil Program manager.

Waste profiles, waste characterization and classification, and waste manifest records.—Maintained by EEMO Waste Management.

Site assessment report (includes site historic information, sampling decisions, sampling plans, and analytical data records).—Maintained by FD.

8.0 REFERENCES

Document number	Document name
40 Code of Federal Regulations (CFR) 243	Guidelines for the Storage and Collection of Residential, Commercial, and Institutional Solid Waste
40 CFR 260 and 263 (as amended)	Hazardous Waste Management System
	Soil Determination Checklist
OAC 3745–27	Ohio Environmental Protection Agency—Solid Waste and Infectious Waste Regulations
OAC 3745–51	Ohio Environmental Protection Agency—Identification and Listing of Hazardous Waste
OAC 3745–52	Ohio Environmental Protection Agency—Generator Standards
OAC 3745–53	Ohio Environmental Protection Agency—Transporter Standards
OAC 3745–270	Ohio Environmental Protection Agency—Hazardous Wastes Restricted From Land Disposal

APPENDIX A.—DEFINITIONS AND ACRONYMS

Area of concern (AOC).—Includes both (1) Solid Waste Management Units where releases of hazardous substances may have occurred and (2) locations where there has been a release or threat of a release into the environment of a hazardous substance, pollutant, or contaminant (including radionuclides) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Code of Federal Regulations (CFR)

Commercial land.—Land with potential exposure of adult workers during a business day and potential exposures of adults and children who are customers, patrons, or visitors to such facilities. Examples of commercial land include—but are not limited to—building supply facilities, office buildings, hotels, and parking facilities.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).—Commonly known as the Superfund.

Contaminant of concern (COC).—Any hazardous constituent or chemical contaminant detected in excavation site soil or associated with an AOC or regulated unit within which an excavation site is located.

Disposal parameters.—A listing of waste constituents and properties.

Energy and Environmental Management Office (EEMO)

Facilities Division (FD)

Generic direct-contact soil standard.—"A generic numerical standard based on an exposure resulting from ingestion of soil, dermal contact with soil or inhalation of volatile and particulate emissions from soil" (from OAC 3745–300–08).

Industrial land.—Land with exposure of adult workers during a business day. Industrial land use must reliably exclude the general public and children from access to the facility. Examples of industrial land include—but are not limited to—power plants, manufacturing facilities, chemical plants, nonpublic airport areas, and limited-access highways.

NASA Glenn Research Center (GRC)

Ohio Administrative Code (OAC)

Polychlorinated biphenyl (PCB)

Resource Conservation and Recovery Act (RCRA)

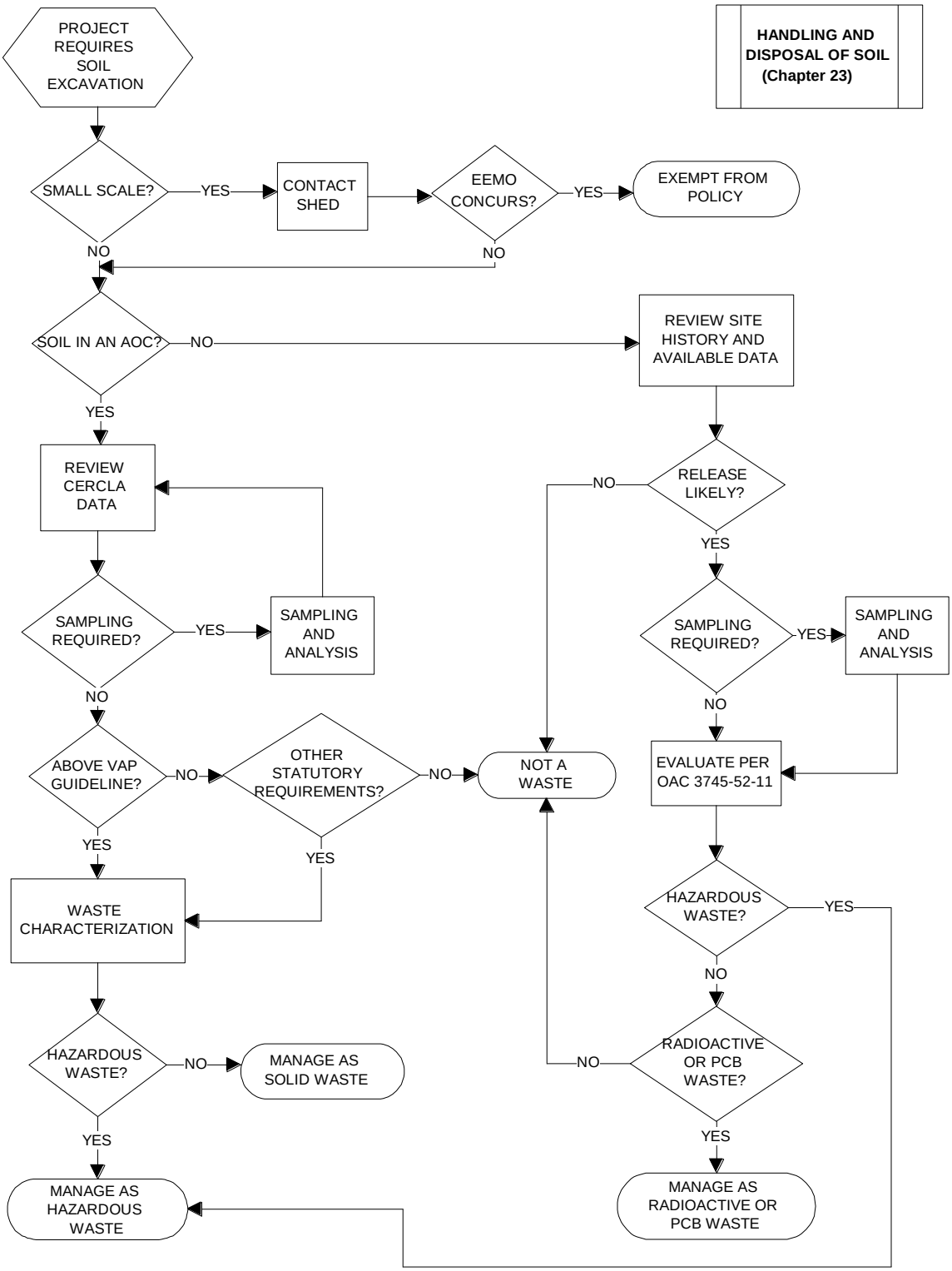
Site assessment.—Gathering information on the chemical and physical nature of site contaminants. At the NASA Glenn Research Center (GRC), this is done to determine the disposition of excavated soil.

Small-scale excavation.—Small excavation where all excavated soil is to be returned to its original location. The determination of what constitutes a small-scale excavation will be left to the discretion of the EEMO. Examples of a small-scale excavation include grounds maintenance, planting of shrubs, installation of fence posts, or some emergency pipe repairs.

To be determined (TBD)

Voluntary Action Program (VAP).—Ohio program defined in OAC 3745–300–01 through 3745–300–15.

APPENDIX B.—SOIL HANDLING, REUSE, AND DISPOSAL FLOWCHART



APPENDIX C.—SAMPLE SOIL DETERMINATION CHECKLIST

Soil Determination Checklist

1. Location of excavation:_____
2. Is the site within or near a CERCLA Area of Concern (AOC)? YES ❑ NO ❑
3. Is there evidence of contamination? YES ❑ NO ❑
4. Do any soil sampling data exist? YES ❑ NO ❑
5. Is the existing data adequate? YES ❑ NO ❑ TBD [Go to #9] ❑
6. Should additional data be collected and evaluated? YES ❑ NO ❑ TBD ❑
7. Soil in the AOC is

Below Voluntary Action Plan (VAP) residential standards	
Above VAP residential / Below commercial standards	
Above VAP commercial standards	

8. Is the soil determined to be a waste? YES ❑ NO ❑ TBD ❑
9. Why or why not?

_____

_____

_____

Note: All soil determined to be a waste must be properly characterized for disposal.

Attachments:

_____

_____

_____

Reviewer: _____ Date: _____

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